STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI - 600 086
(For candidates admitted from the academic year 2025-26)

B. Sc. DEGREE EXAMINATION, APRIL 2026
MATHEMATICS WITH COMPUTER APPLICATIONS
SECOND SEMESTER

COURSE : MAJOR CORE
PAPER : PROGRAMMING IN PYTHON WITH PRACTICAL (THEORY)
SUBJECT CODE : 25MC/MC/PY25
TIME : 90 Minutes **MAX. MARKS : 50**

Q. No.	SECTION A (5 × 2 = 10) Answer ALL questions	CO	KL
1.	Define algorithm. Mention any two characteristics of a good algorithm.	1	1
2.	What is a Boolean expression? Give one example in Python.	1	1
3.	Define a function in Python.	1	1
4.	What is List Comprehension in Python?	1	1
5.	What is NumPy? State one use of it in mathematical computations.	1	1
Q. No.	**SECTION B (2 × 5 = 10)** **Answer ANY TWO questions**	**CO**	**KL**
6.	Explain literals, variables, and identifiers with examples.	1	2
7.	Explain while loop, infinite loop, and Boolean flags with suitable examples.	1	2
8.	Describe the arithmetic operations on matrices using NumPy. Explain matrix addition, subtraction, and multiplication with examples.	1	2
Q. No.	**SECTION C (2 × 10 = 20)** **Answer ANY TWO questions**	**CO**	**KL**
9.	Explain lists, tuples, dictionaries, and sets in Python with suitable examples and differences.	2	3
10.	Discuss defining functions**,** calling functions**,** value-returning and non-value-returning functions, and explain their importance in modular programming.	2	3
11.	Explain in detail any two types of control structures in Python. Also write appropriate Python programs demonstrating each type of control structure.	2	3

Q. No.	SECTION D (2 × 5 = 10) Answer ANY TWO questions	CO	KL
12.	Explain the different data types in Python.	3	4
13.	Define recursion. Why is a base condition necessary in recursive functions?	3	4
14.	What is a module in Python? Explain the need for modular programming.	3	4